How to Host a SphereCast

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What Hardware and Software Do I Need to Host a SphereCast?

Hosting a SphereCast for other sites requires some additional hardware and software components, in addition to those needed to receive a SphereCast. While there are other streaming video solutions, our current SphereCast video servers are using Apple's streaming QuickTime technology. The easiest way to take advantage of this infrastructure is to use a Mac computer running QuickTime Broadcaster (freely available for download at http://support.apple.com/kb/DL764) to feed your SphereCast video via our servers.

A video camera is required for the video streaming part of the SphereCast, of course. To use QuickTime Broadcaster, the camera needs to be able to connect to the Mac that compresses and encodes the video for streaming. A tripod and lighting kit is highly recommended for a quality video production. A dedicated microphone for your presenter is also critical for the presenter to be easily understood by the remote sites.

The Internet bandwidth requirements for hosting a SphereCast are more demanding than for receiving one. Many high-speed internet connections are asymmetrical, with higher bandwidths downstream (incoming) than upstream (outgoing). For hosting a SphereCast, adequate upstream bandwidth of at least 1.5 MBits/sec is required.

Your SOS system must be running version 4.2.1 or later (some earlier versions of SOS may be supported, but we strongly recommend you upgrade your SOS to the latest to avail of all features).

Step-by-Step Instructions to Host a SphereCast

Please follow the steps below to prepare to host a SphereCast.

1. Prepare hardware and software, well in advance!

Well in advance of the SphereCast, you'll need to make sure you have the required hardware and software

2. Contact us to set up an account.

In order for your site to host a SphereCast and send out SOS control commands to other sites, you must have an account set up on our XMPP server (located at NOAA ESRL in Boulder, CO). Send an email to sos.support@noaa.gov to request an account, and we will send you a user name and password for your SOS site.

3. Test local video connectivity.

This test assumes the host site will be using the ESRL streaming video server. If this is not the case, separate instructions will need to be sent to all receiving SOS sites in advance of how to connect to the video stream. If doing a SOS network-wide SphereCast, we can put these instructions on the SphereCasting homepage.

To test video connectivity from your site to our QuickTime streaming video servers, try the following links. Ultimately, you'll want to test this with the same hardware (a dedicated Mac or PC with QuickTime Viewer) and Internet connection that you'll be using to present the audio/video part of the live SphereCast. That will validate your Internet connectivity, streaming software, and audio-video hardware. These clips don't require an SOS system.

1. Apple QuickTime Test Clip (1:10). This is an Apple-supplied clip of an animated QuickTime Logo and some accompanying audio. It's computer-generated, so it should look and sound good.
2. Prototype SphereCast Clip (35:52). This is an archive copy of the first SphereCast prototype, led by Dr. Alexander E. MacDonald from the ESRL SOS Planet Theater, to the SOS User Meeting at the Bishop Museum, on July 30, 2008. This video is representative of what you might expect for a typical SphereCast. The audio quality is rather poor because our Planet Theater is very reverberant.

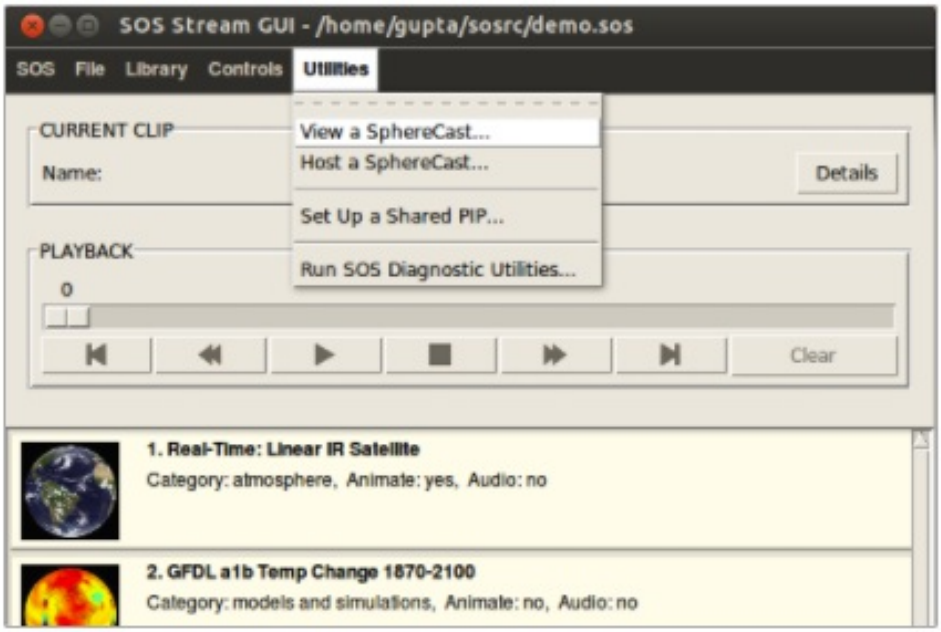
4. Test connectivity to the ESRL remote control server.

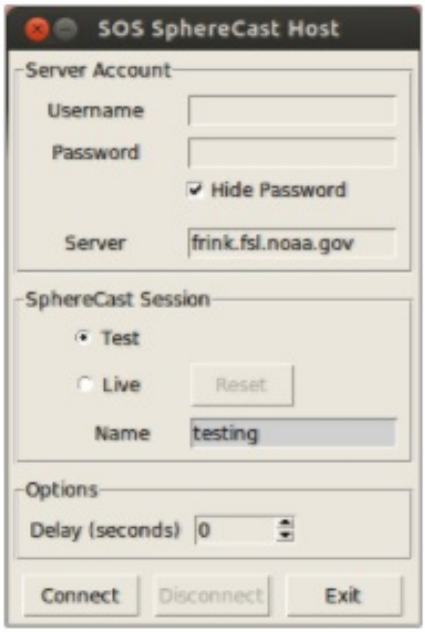
To test remote-control connectivity from your SOS system to our SOS remote-control servers, first load the

normal-demo.sos playlist into SOS Stream GUI (from the File menu, select "Open Playlist..."). Then, open the Utilities menu on SOS Stream GUI and select “Host a SphereCast”.

This will open the SOS SphereCast Host interface. Enter the Username and Password that we sent you. Make sure the Server field is filled out with “frink.fsl.noaa.gov”. Select “Test” from the SphereCast Session section. Click “Connect”.

If your connection succeeds (assuming our test program that sends out test commands is running on our server in Boulder, CO), your sphere will start moving around in random fits and bursts of motion. This indicates that your connection has succeeded. To disconnect from the test, click the “Disconnect” button.





5. Set up the video and audio stream

This section assumes the host site will be using the ESRL streaming video server and QuickTime Broadcaster to broadcast the video stream. If this is not the case, separate instructions will need to be sent to all receiving SOS sites in advance of how to connect to the video stream. If doing a SOS network-wide SphereCast, we can put these instructions on the SphereCasting homepage.

Open the QuickTime Broadcaster program on your Mac. Fill in the Audio and Video portions of the QuickTime Broadcaster interface as is appropriate for your site. If you need help, let us know. For the Network options section of QuickTime Broadcaster, fill in the following parameters:

Transmission: Automatic Unicast (Announce)
Host Name: frink.fsl.noaa.gov
File: spherecast
Username: Email sos.support@noaa.gov to get the username
Password: Email sos.support@noaa.gov to get the password

Check **Broadcast over TCP.**

You can preview your broadcast by selecting “Source” from the Preview drop-down menu located in the upper left-hand corner of the interface.

When you are ready to broadcast the stream, click the “Broadcast” button.

6. Schedule the SphereCast, well in advance!

Schedule and advertise to other SOS sites well in advance. SOS sites need to have time to make sure space is available and reserved internally for the SphereCast event, as well as time to setup their hardware and software to receive the SphereCast.

If you are doing a SOS network-wide SphereCast:

1. send us your SphereCast event playlist so we can put it on our SphereCasting homepage and make it available for download by other SOS sites. If you are creating any new datasets for this event that are not in our SOS Data Catalog, you will need to make those available to SOS sites in advance as well. (We can also make those datasets available for download on our SphereCasting homepage.)

2. Schedule a time with us at least a few days before the SphereCast event to test out your host setup. During the test, you will run your SphereCast event playlist and you will control the sphere (orientation and playback controls), as well as run your live video and audio, and we will act as a receiving site and make sure we can receive your SOS commands on our sphere, as well as your video and audio.

You will follow (A) and (B) above, except that you should send the playlist and any custom datasets directly to those sites and do the test with those sites (of course, we are happy to assist if any issues arise).

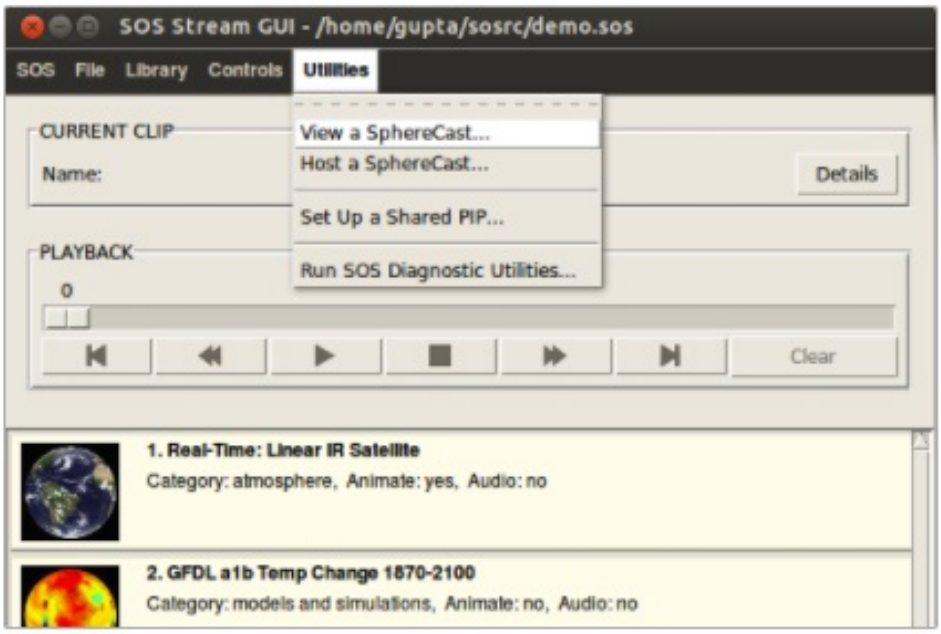
In addition, you will need to come up with a SphereCast Session Name that you can fill into the Name slot of the SOS SphereCast Host interface. You will need to send this name to all sites who will be receiving your SphereCast so they can connect to your specific SphereCast. You can choose a simple name, such as the name or abbreviation of your museum. The Name field will only accept alphanumeric characters with no spaces or special characters in it.

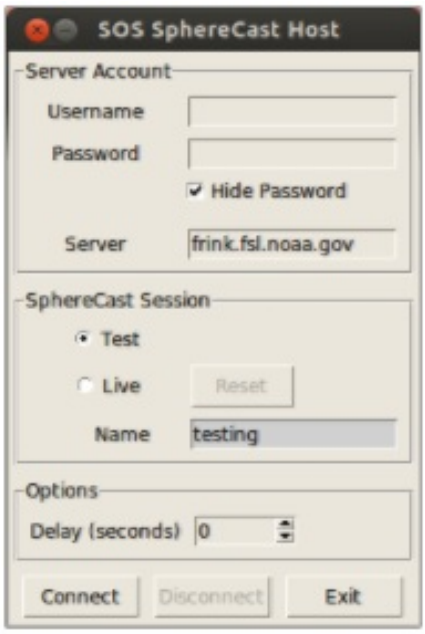
7. Connect to the ESRL remote control server as host to broadcast the live SOS commands to other sites.

You are now ready to host a SphereCast. First, load your SphereCast playlist (from SOS Stream GUI's File menu, select "Open Playlist..."). Then, open the Utilities menu on SOS Stream GUI and select "Host a SphereCast".

This will open the SOS SphereCast Host interface. Enter the Username and Password that we sent you. Make sure the Server field is filled out with "frink.fsl.noaa.gov". Select "Live" from the SphereCast Session section. If you are doing a SOS network-wide SphereCast, leave the SphereCast Session Name as the default "spherecast". If you are doing a private SphereCast with a selected site or sites, enter the name of the SphereCast in the Name field (the name you selected in Step 6 above).

Click "Connect". At this point, if your connection succeeded, SOS sites who have subscribed to the SphereCast will be receiving SOS remote control commands from your site.


SOS Stream GUI - /home/gupta/sosrc/demo.sos
SOS
File
Library
Controls
Utilities
View a SphereCast...
Host a SphereCast...
Set Up a Shared PIP...
Run SOS Diagnostic Utilities...
CURRENT CLIP
Name:
Details
PLAYBACK
0
Clear
1. Real-Time: Linear IR Satellite
Category: atmosphere, Animate: yes, Audio: no
2. GFDL a1b Temp Change 1870-2100
Category: models and simulations, Animate: no, Audio: no


SOS SphereCast Host
Server Account
Username
Password
Hide Password
Server
frink.fsl.noaa.gov
SphereCast Session
Test
Live
Reset
Name
testing
Options
Delay (seconds)
0
Connect
Disconnect
Exit